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ABSTRACT

This report describes two-way interactive television and its use by Minnesota's elementary and secondary schools, and discusses the potential of two-way interactive television systems for education in the next decade. While the report describes a diversity of current uses of two-way interactive television, it is argued that these applications by no means represent the limits of these systems. It is noted that the obvious educational advantage of two-way educational television is that learners can participate in specialized classes offered from area schools or school districts without traveling. The four chapters provide: (1) an introduction to two-way interactive television and classroom design; (2) descriptions of interactive television programming for elementary and secondary schools, adult courses, special events, inter-school/inter-departmental uses, and unique by-products; (3) information on interfacing interactive television with other technologies; and (4) individual system profiles of regional districts and their interactive television projects. Maps, contact names, and telephone numbers are included. (DB)

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DISTANCE EDUCATION FOR ALL AGES IN MINNESOTA

The K-12 Systems Perspective

Minnesota Department of Education
Instructional Design Section
1990

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Preface

The purpose of this publication is to acquaint the reader with how two-way interactive television is being used by Minnesota's K-12 schools and with the vast potential two-way interactive television systems have for education in the next decade. While this publication contains a diversity of actual uses for two-way interactive television, they by no means represent the limits of these systems. The potential of interactive television is limited only to the imagination and vision of those using it. Technology has broken down the barrier of distance and provided new educational options and opportunities for learners of all ages at any location.

Interactive television serves an effective and useful function in the educational delivery system. The obvious educational advantage of this two-way interactive system is that learners can participate in specialized classes offered from area schools or school districts without traveling. But as with any function, it cannot solve all the problems in an educational system. Interactive television is a viable means of enhancing the curriculum and providing programming that otherwise would not be available to students and teachers. Minnesota school districts implementing interactive television have never intended to supplant present curriculum and staff or to save economic resources.

With that in mind, the reader is encouraged to explore the uses presented in this publication for the unlimited possibilities and opportunities that interactive television offers schools and communities.

Chapter One
Introduction to Two-way Interactive Television

What is two-way interactive television?

Two-way interactive television is one method of distance learning that allows students and teachers from two or more sites to communicate with each other. Fiber optic, microwave, coaxial cable, or broadcast transmission systems may be used to send and receive voice and video signals simultaneously. The design of the transmission system rather than the type of transmission system determines the system's capabilities.

System capabilities

Various forms of interactive television are used across the country. At the simplest level, video and audio signals are transmitted only from the host site to one or more remote sites. A voice-only return is provided from the remote sites to the host site. The teacher cannot see the students. The students can see and hear the teacher but not students at other locations. Minnesota's K-12 schools do not use this type of interactive television.

In some systems, video and audio signals are sent both ways between the host and remote sites. Transmission between remote sites is limited or nonexistent. Teachers and students can interact. Student-to-student interaction among the remote sites is limited at best. Only a few Minnesota schools operate with these limitations.

Most Minnesota schools have complete two-way interaction among all participating sites. Every television classroom has the identical capability to send and receive continuous, full-motion video and audio signals. The obvious educational advantage of this two-way interactive system is that learners can actively participate in specialized classes and can freely interact with classmates and teachers.

Classroom design

When you observe a two-way interactive television classroom, you will see a relatively normal class going on except the students will be talking to their teacher through a television monitor. Fellow classmates from other sites may also be seen on television monitors in the front of the room. While students may be separated by many miles, they can clearly see and hear each other at all times. Three cameras capture the action in the classroom. One is focused on the teacher. Another camera is focused on the students and a third camera zooms in on visual materials or demonstrations on the teacher's desk. The teacher selects the signal to send by using a push button switcher . Microphones pick up the students' and teachers' voices from anywhere in the classroom. Class materials are sent via facsimile, courier or U.S mail.

The classroom diagram on the opposite page depicts a typical television classroom design. Actual classrooms are all custom designed. The number and arrangement of monitors and student seating may vary.

Diagram by Jerry Abraham, M-SET Cooperative

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How did Minnesota get started?

Minnesota has been using interactive television since 1980. The first site was a cluster of schools surrounding Eagle Bend which were funded by a grant from the Council on Quality Education. The first fifty-eight Minnesota school districts to install two-way interactive television were part of the Minnesota Technology Demonstration Sites program. All types of transmission systems have been successfully used in Minnesota. Fiber optics is increasingly being chosen as the preferred transmission system because of future expandability. As of February, 1990, about 149 of Minnesota's 433 school districts are using interactive television to expand educational opportunities.

Why are Minnesota schools using interactive television?

Interactive television provides enrichment activities and expanded learning opportunities to learners of all ages. In the K-12 curriculum, interactive television responds to a local desire to expand the available student curriculum, to meet the increased state curriculum requirements, and to fulfill increased college entrance requirements. The courses are offered via telecommunications because individual schools do not have sufficient students enrolled in a course to make it financially feasible to offer it within the school or a qualified teacher is not available in the local school district.

Course selection

Often a large number of interactive television courses are offered to students during class registration. They are put on the class offerings list in order to meet state minimum curriculum offerings requirements or because teachers have volunteered to teach a course. Student registrations determine which courses are actually taught. Required core courses have not been offered on these systems. In all cases, student registration for interactive television classes is voluntary.

Expanded uses

Beyond the school day, interactive television becomes the vehicle by which learning becomes a lifelong adventure. For example, faculty from both post-secondary institutions and local school districts share their expertise with local groups through classes and seminars.

As these systems have been developed, additional benefits have emerged. These benefits include increased cooperation among school districts and between the schools and community agencies. Sharing of resources increases. Regional leadership development is emphasized and a general strengthening of educational services and quality of life occurs.

Is interactive television effective?

Evaluation data and observation by project coordinators and teachers from several interactive systems verify that interactive television works. Two-way interactive television has been proven an effective system for delivering instruction. In 1986, the technology demonstration site evaluator said students learn equally well via the interactive television system as they do in a traditional classroom. In interactive television classes, student grades were compared at the host site where the teacher is physically present and the remote sites where instruction is received over the television. No significant difference was found. For students taking interactive television world language classes, student grades were compared for their traditional English classes and the same students' world language classes. No significant difference was found.

The medium does not significantly affect academic achievement or the teachers' teaching styles. Interaction patterns were charted in the interactive television classes and compared to the same teachers traditional classes. The level of interaction was similar and varied with the teacher rather than with the technology. Comments related to discipline accounted for less than one percent of the recorded interactions. Time on task was high in the interactive television classroom and teachers commented on the need to be well prepared to keep the class moving.

Chapter Two
Interactive Television Programming

Because of its flexibility, interactive television caters to a wide range of curriculum areas throughout Minnesota. World languages tend to be the most prevalent curriculum offering. Courses have also been offered in the areas of business, language arts, science, social studies, fine arts, mathematics, and vocational education.

Experience has also proven that interactive television is not appropriate for all courses, students, or teachers. Courses that tend to work the best are low incident, elective courses. Students taking the course tend to be self-motivated and truly interested in the material being presented. Classes and teachers that use a high level of interactivity tend to work well on interactive television.

Although interactive television was first developed to enhance secondary curriculum offerings, it has also been found to be a very practical tool in providing other types of information and programming for elementary students, community, and school staff. With this diversity of offerings on interactive television, many Minnesota systems are operating from early morning until night in providing education to a wide audience range.

The following information demonstrates the present scope and use of interactive television systems in the State of Minnesota. Expanded uses for other interactive television systems are encouraged.

1) K-12 Courses

The following charts indicate courses and programs that have been offered to K-12 students on Minnesota interactive television networks since their inception in the state in 1980:

At any given hour in the day, more than one course can be offered over the system. See the sample schedule below from Mid-State Educational Telecommunications Cooperative.

Hour	Hold.	L. Falls	L. Prairie	Pierz	Royalton	Swanville	Upsala	Onamia
1st 8:25		SPANISH I	spanish I	spanish I	french I	french I		FRENCH I
2nd 9:15		SPANISH II	spanish II	spanish II		adv. math	adv. math	ADV. MATH
3rd 10:09	spanish I	german II	GERMAN II	german II	german II	spanish I	GERMAN II	SPANISH I
4th 11:07	french I	FRENCH I	french I	PSYCH-OLOGY		psych-ology	psych-ology	
5th 12:29	french II	FRENCH II					french II	french II
6th 1:23	ACCOUNT II	german I	GERMAN I	account II	german I	account II	modern tech	MODERN TECH
7th 2:17			account II			mn geology	ACCOUNT II	MN GEOLOGY

HOME SITES IN CAPITALS, remote sites in lower case

ELEMENTARY COURSES								
							Spelling	Chess
Site Name	French	Spanish	German	Art	Science	Reading	Bees	Club
Austin-Southland								
Bloomington Public Schools								
Brainerd Public Schools								
Central Minnesota Ed Telecom System								
DesMoines River Valley Telemedia								
Edina Public Schools								
ECMECC								
Eden Valley/Watkins-Kimball								
Educational Telecommunications System		summer		summer				
Freshwater Woodland Cooperative Center		yes		yes	yes			
Hastings Public Schools	yes	yes	yes					
Intermediate District 287						yes		
Intermediate District 916								
KIDS								
Lake Superior Public Schools								
LeSueur-Henderson								
Little Crow Telemedia								
Mid-State Ed Telecom Cooperative	yes				yes		yes	yes
Minneapolis Public Schools								
Minnesota Moose Country								
Minnesota Valley Telenetwork								
Moundsview-Roseville-Saint Anthony	yes					yes		
North Saint Paul-Maplewood-Oakdale		yes						
Northwest Educational Tech Cooperative								
Quad County Telecom Project								
Rochester Public Schools								
Shakopee Public Schools								
Sherburne/Wright Ed Tech Cooperative								
Sibley County Cooperative								
South Washington County Schools		yes						
Southwest Minnesota Telecommunications								
Valley and Lakes Education District								
Wasioja								

JUNIOR HIGH COURSES						
					Honors	
Site Name	French	Spanish	German	Chinese	Math	Algebra
Austin-Southland						
Bloomington Public Schools						
Brainerd Public Schools						
Central MN Ed Telecomm System						
DesMoines River Valley Telemedia		yes				
Edina Public Schools			yes			
ECMECC	Grade 9	Grade 9		yes		
Eden Valley/Watkins-Kimball		yes	yes			
Educational Telecommunications System						
Freshwater Woodland Cooperative Center						
Hastings Public Schools						
Intermediate District 287			yes	yes		
Intermediate District 916						
KIDS	Grade 9	Grade 9	Grade 9			
Lake Superior Public Schools						
LeSueur-Henderson						
Little Crow Telemedia						
Mid-State Educ Telecom Coop	yes	yes	yes			
Minneapolis Public Schools						
Minnesota Moose Country						
Minnesota Valley Telenetwork						
Moundsview-Roseville-Saint Anthony						
North Saint Paul-Maplewood-Oakdale						
Northwest Educational Tech Coop						
Quad County Telecom Project						
Rochester Public Schools						
Shakopee Public Schools						
Sherburne/Wright Educ Tech Coop						
Sibley County Cooperative					Grade 7	Grade 9
South Washington County Schools		yes				
Southwest MN Telecommunications						
Valley & Lakes Education District						
Wasioja						

SENIOR HIGH COURSES- BUSINESS					
				Personal	
			Business	Financial	Sales &
Site Name	Accounting	Shorthand	Law	Management	Marketing
Austin-Southland					
Bloomington Public Schools					
Brainerd Public Schools					
Central Minnesota Ed Telecomm System	III				
DesMoines River Valley Telemedia					
Edina Public Schools					
ECMECC	advanced	beg & advanced			
Eden Valley/Watkins-Kimball					
Educational Telecommunications System					
Freshwater Woodland Cooperative Center					
Hastings Public Schools					
Intermediate District 287					
Intermediate District 916					
KIDS					
Lake Superior Public Schools					
LeSueur-Henderson					
Little Crow Telemedia					
Mid-State Ed Telecom Cooperative	II	yes	yes		
Minneapolis Public Schools					
Minnesota Moose Country					
Minnesota Valley Telenetwork					yes
Moundsview-Roseville-Saint Anthony					
North Saint Paul-Maplewood-Oakdale					
Northwest Educational Tech Coop		yes			
Quad County Telecom Project	I			yes	
Rochester Public Schools					
Shakopee Public Schools					
Sherburne/Wright Ed Tech Cooperative					
Sibley County Cooperative	yes	yes			
South Washington County Schools					
Southwest Minnesota Telecommunications		yes			
Valley and Lakes Education District			yes		
Wasioja	II	yes			

SENIOR HIGH COURSES- CONSUMER HOMEMAKING OCCUPATIONS				
Site Name	Family Living	Interior Design	Fashion Design	Housing & Child Development
Austin-Southland				
Bloomington Public Schools				
Brainerd Public Schools				
Central Minnesota Ed Telecomm System				
DesMoines River Valley Telemedia				
Edina Public Schools				
ECMECC		yes		
Eden Valley/Watkins-Kimball				
Educational Telecommunications System		yes	yes	
Freshwater Woodland Cooperative Center				
Hastings Public Schools				
Intermediate District 287				
Intermediate District 916				
KIDS				
Lake Superior Public Schools				
LeSueur-Henderson				
Little Crow Telemedia				
Mid-State Ed Telecom Cooperative				
Minneapolis Public Schools				
Minnesota Moose Country				
Minnesota Valley Telenetwork				
Moundsview-Roseville-Saint Anthony				
North Saint Paul-Maplewood-Oakdale				
Northwest Educational Tech Cooperative				
Quad County Telecom Project				
Rochester Public Schools				
Shakopee Public Schools				
Sherburne/Wright Ed Tech Cooperative				
Sibley County Cooperative				
South Washington County Schools				
Southwest Minnesota Telecommunications				yes
Valley and Lakes Education District	yes			
Wasioja	yes			

SENIOR HIGH COURSES- LANGUAGE ARTS											
	Creative					AP	College	Mass	Minnesota	Speed	Advanced
Site Name	Writing	Journalism	Speech	Shakespeare	Drama	English	English	Communications	Authors	Reading	Learning Skills
Austin-Southland											
Bloomington Public Schools											
Brainerd Public Schools											
Central MN Ed Telecom System			yes	yes							
DesMoines River Valley Telemedia											
Edina Public Schools											
ECMECC			yes			yes	yes			yes	
Eden Valley/Watkins-Kimball											
Ed Telecommunications System	yes				yes		yes	yes			
Freshwater Woodland Coop Center											
Hastings Public Schools											
Intermediate District 287											
Intermediate District 916											
KIDS						yes					
Lake Superior Public Schools		yes	senior			yes					yes
LeSueur-Henderson											
Little Crow Telemedia	yes					yes					
Mid-State Educ Telecom Coop						yes					
Minneapolis Public Schools											
Minnesota Moose Country											
Minnesota Valley Telenetwork			yes		yes			yes			
Moundsview-Roseville-StAnthony											
North StPaul-Maplewood-Oakdale											
Northwest Educational Tech Coop						yes					
Quad County Telecom Project				yes	college	yes			yes		
Rochester Public Schools											
Shakopee Public Schools											
Sherburne/Wright Educ Tech Coop						yes	yes				
Sibley County Cooperative					yes			yes			
South Washington County Schools											
Southwest MN Telecommunications											
Valley and Lakes Education District	yes	yes	yes				yes				
Wasioja							yes				

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SENIOR HIGH COURSES- MATHEMATICS									
	Trigonometry		Advanced	College		College	Probability		Problem
Site Name	Pre-Calculus	Calculus	Math	Algebra	Geometry	Math	& Statistics	Analysis	Solving
Austin-Southland									
Bloomington Public Schools									
Brainerd Public Schools									
Central MN Ed Telecomm System									
DesMoines River Valley Telemedia									
Edina Public Schools									
ECMECC		yes		yes	yes				
Eden Valley/Watkins-Kimball									
Ed Telecommunications System	college	college	yes	yes		yes			
Freshwater Woodland Coop Center			yes	yes					
Hastings Public Schools									
Intermediate District 287		advanced							
Intermediate District 916									
KIDS	yes	yes				calculus			
Lake Superior Public Schools		yes							
LeSueur-Henderson									
Little Crow Telemedia			yes						
Mid-State Educ Telecom Coop	yes							yes	
Minneapolis Public Schools									
Minnesota Moose Country									
Minnesota Valley Telenetwork							yes		
Moundsview-Roseville-StAnthony									
North Saint Paul-Maplewood-Oakdale									
Northwest Educational Tech Coop		yes					yes		
Quad County Telecom Project									
Rochester Public Schools									
Shakopee Public Schools									
Sherburne/Wright Educ Tech Coop									
Sibley County Cooperative	yes	yes							
South Washington County Schools									
Southwest MN Telecommunications									
Valley and Lakes Education District	yes								
Wasioja		yes	yes						yes

SENIOR HIGH COURSES- OCCUPATIONS								
Site Name	Agri-business	Health Occupations	Animal Science	Farm Management	Agriculture 1	DECA OJT	Fish/Wildlife Management	Light Horse Management
Austin-Southland								
Bloomington Public Schools								
Brainerd Public Schools								
Central Minnesota Ed Telecomm System					yes			
DesMoines River Valley Telemedia								
Edina Public Schools								
ECMECC								
Eden Valley/Watkins-Kimball								
Educational Telecommunications System								
Freshwater Woodland Cooperative Center								
Hastings Public Schools								
Intermediate District 287								
Intermediate District 916								
KIDS					yes			
Lake Superior Public Schools								
LeSueur-Henderson								
Little Crow Telemedia				yes				
Mid-State Ed Telecom Cooperative						yes	yes	yes
Minneapolis Public Schools								
Minnesota Moose Country								
Minnesota Valley Telenetwork								
Moundsview-Roseville-Saint Anthony								
North StPaul-Maplewood-Oakdale								
Northwest Educational Tech Cooperative								
Quad County Telecom Project								
Rochester Public Schools								
Shakopee Public Schools								
Sherburne/Wright Ed Technology Coop								
Sibley County Cooperative	yes	yes						
South Washington County Schools								
Southwest Minnesota Telecommunications				yes				
Valley and Lakes Education District			yes				yes	
Wasioja								

SENIOR HIGH COURSES- SCIENCE											
Site Name	Physics	Astron-omy	Meteor-ology	AP Biology	Geology	Ornith-ology	Genetics	MN Geology	Modern Tech	Human Anatomy	Cur. Prob Ecology
Austin-Southland											
Bloomington Public Schools											
Brainerd Public Schools											
Central MN Ed Telecomm System				college		yes					
DesMoines River Valley Telemedia											
Edina Public Schools											
ECMECC		yes	yes								
Eden Valley/Watkins-Kimball											
Ed Telecommunications System	yes									yes	yes
Freshwater Woodland Coop Center	yes										
Hastings Public Schools											
Intermediate District 287											
Intermediate District 916											
KIDS	yes										
Lake Superior Public Schools											
LeSueur-Henderson											
Little Crow Telemedia				yes							
Mid-State Ed Telecom Cooperative		yes						yes	yes		
Minneapolis Public Schools											
Minnesota Moose Country											
Minnesota Valley Telenetwork		yes			yes						
Moundsview-Roseville-StAnthony											
North St Paul-Maplewood-Oakdale											
Northwest Educational Tech Coop											
Quad County Telecom Project											
Rochester Public Schools											
Shakopee Public Schools											
Sherburne/Wright Educ Tech Coop											
Sibley County Cooperative	yes										
South Washington County Schools											
Southwest MN Telecommunications							yes			yes	
Valley and Lakes Education District										yes	
Wasioja	yes			yes							

SENIOR HIGH COURSES- SOCIAL STUDIES							
Site Name	Economics	Psychology	World Geography	International Relations	Russian History	World at War 1914-45	AP European History
Austin-Southland							
Bloomington Public Schools							
Brainerd Public Schools							
Central Minnesota Ed Telecom System		Advanced					
DesMoines River Valley Telemedia							
Edina Public Schools							
ECMECC					yes	yes	yes
Eden Valley/Watkins-Kimball							
Educational Telecommunications System	yes	yes	yes	yes			
Freshwater Woodland Cooperative Center		college					
Hastings Public Schools							
Intermediate District 287							
Intermediate District 916							
KIDS							
Lake Superior Public Schools							
LeSueur-Henderson							
Little Crow Telemedia				yes			
Mid-State Ed Telecom Cooperative		yes					
Minneapolis Public Schools							
Minnesota Moose Country							
Minnesota Valley Telenetwork		yes					
Moundsview-Roseville-Saint Anthony							
North Saint Paul-Maplewood-Oakdale							
Northwest Educational Tech Cooperative			advanced				
Quad County Telecom Project							
Rochester Public Schools							
Shakopee Public Schools							
Sherburne/Wright Ed Tech Cooperative							
Sibley County Cooperative							
Souh Washington County Schools							
Southwest Minnesota Telecommunications							
Valley and Lakes Education District	yes	I, II					
Wasioja		yes					

SENIOR HIGH COURSES- SOCIAL STUDIES- continued								
Site Name	(Current) Social Problems	AP Government	Am Indian History	NE MN History	Social & Abnormal Psych	Chinese Culture	Civil & Criminal Law	Current Events
Austin-Southland								
Bloomington Public Schools								
Brainerd Public Schools								
Central Minnesota Ed Telecomm System								
DesMoines River Valley Telemedia								
Edina Public Schools								
ECMECC						yes		
Eden Valley/Watkins-Kimball								
Educational Telecommunications System							yes	
Freshwater Woodland Cooperative Center	yes							
Hastings Public Schools								
Intermediate District 287								
Intermediate District 916								
KIDS								
Lake Superior Public Schools								yes
LeSueur-Henderson								
Little Crow Telemedia		yes						
Mid-State Ed Telecom Cooperative								
Minneapolis Public Schools								
Minnesota Moose Country								
Minnesota Valley Telenetwork					yes			
Moundsview-Roseville-Saint Anthony								
North Saint Paul-Maplewood-Oakdale								
Northwest Educational Tech Coop								
Quad County Telecom Project			yes	yes				
Rochester Public Schools								
Shakopee Public Schools								
Sherburne/Wright Ed Technology Coop								
Sibley County Cooperative								
South Washington County Schools								
Southwest MN Telecommunications								
Valley and Lakes Education District								
Wasioja								

SENIOR HIGH COURSES- WORLD LANGUAGES								
Site Name	French	Spanish	German	Chinese	Russian	Latin	Japanese	Objibwe
Austin-Southland		I, II						
Bloomington Public Schools					I, II	I		
Brainerd Public Schools					college			
Central MN Ed Telecom System	I		I					
DesMoines River Valley Telemedia	I	I, II	II					
Edina Public Schools			I					
ECMECC	I, II, III	I, II, III, college	I, II, IV	I, II		I, II		
Eden Valley/Watkins-Kimball		I, II, III	I, II, III, IV					
Ed Telecommunications System	I, II	I, II, III						
Freshwater Woodland Coop Center	I	I, II, III	I, II					
Hastings Public Schools								
Intermediate District 287					yes		I, II	
Intermediate District 916					I			
KIDS	I, II	I, II, III	I, II					
Lake Superior Public Schools								
LeSueur-Henderson								
Little Crow Telemedia		I, II	I					
Mid-State Ed Telecom Cooperative	I, II	I, II	I, II					
Minneapolis Public Schools								
Minnesota Moose Country								
Minnesota Valley Telenetwork	I, II, III	I, II	I, II					
Moundsview-Roseville-StAnthony								
North StPaul-Maplewood-Oakdale								
Northwest Educational Tech Coop	I	I						
Quad County Telecom Project	I, II	I	I					yes
Rochester Public Schools		IV						
Shakopee Public Schools								
Sherburne/Wright Ed Tech Coop	I	I, II	I, II					
Sibley County Cooperative		I, II, III	I, II					
South Washington County Schools	IV	IV	III		II, III			
Southwest MN Telecommunications	I	I, II	I, II					
Valley and Lakes Education District		I, II, college	I	college				
Wasioja		I, II, III	I, II					

POST SECONDARY COURSES										
Site Name	Composition	College English	College Spanish	College Biology	Ethics	Asian History	Communi-cations	World History	Psych-ology	Geography
Austin-Southland										
Bloomington Public Schools										
Brainerd Public Schools										
Central MN Ed Telecomm System				yes						
DesMoines River Valley Telemedia										
Edina Public Schools										
ECMECC		yes	III, IV							
Eden Valley/Watkins-Kimball										
Ed Telecommunications System		yes								
Freshwater Woodland Coop Center	yes				yes					
Hastings Public Schools										
Intermediate District 287										
Intermediate District 916										
KIDS										
Lake Superior Public Schools										
LeSueur-Henderson										
Little Crow Telemedia										
Mid-State Educ Telecom Coop										
Minneapolis Public Schools										
Minnesota Moose Country										
Minnesota Valley Telenetwork										
Moundsview-Roseville-StAnthony										
North StPaul-Maplewood-Oakdale										
Northwest Educational Tech Coop										
Quad County Telecom Project	I, II								Intro	
Rochester Public Schools										
Shakopee Public Schools										
Sherburne/Wright Educ Tech Coop		yes								
Sibley County Cooperative						yes	I, II	yes	yes	yes
South Washington County Schools										
Southwest MN Telecommunications										
Valley and Lakes Education District		yes	yes							
Wasioja		yes								

POST SECONDARY COURSES- Continued										
Site Name	Astron-omy	Social Problems	Modern Drama	Am Sign Language	Soci-ology	College Calculus	College Algebra	College Trig	Russian	College Philosophy
Austin-Southland										
Bloomington Public Schools										
Brainerd Public Schools									yes	
Central MN Ed Telecomm System										
DesMoines River Valley Telemedia										
Edina Public Schools										
ECMECC										
Eden Valley/Watkins-Kimball										
Ed Telecommunications System						yes	yes	yes		
Freshwater Woodland Coop Center										
Hastings Public Schools										
Intermediate District 287										
Intermediate District 916										
KIDS						yes				
Lake Superior Public Schools										
LeSueur-Henderson										
Little Crow Telemedia										
Mid-State Educ Telecom Coop										
Minneapolis Public Schools										
Minnesota Moose Country										
Minnesota Valley Telenetwork										
Moundsview-Roseville-StAnthony										
North StPaul-Maplewood-Oakdale										
Northwest Educational Tech Coop										
Quad County Telecom Project		yes	yes	yes	yes					
Rochester Public Schools										
Shakopee Public Schools										
Sherburne/Wright Educ Tech Coop										
Sibley County Cooperative	yes									
South Washington County Schools										
Southwest MN Telecommunications										
Valley and Lakes Education District										yes
Wasioja										

2) *Adult Courses*

The following listing indicates the courses and programs that have been offered to adults over Minnesota interactive television networks. Adults wishing to participate in these learning opportunities usually attend at the closest high school that has an interactive television classroom.

Community Education

General interest courses offered to community members.

Central Minnesota Educational Telecommunications System (CMETS)

Starting a Business

East Central Minnesota Educational Cable Cooperative (ECMECC)

"AIDS" (University of Minnesota Extension)
"AIDS" Education Workshop
Am I Over My Midlife Crisis Yet?
Asset Management/Financial Planning
Baseball Card Collecting
Calligraphy
Canning
Commercial Blueberry Production
Controlling Humidity in the Home
Coupon Exchange
Disability Income Insurance
Dried and Preserved Flowers as an Alternative Crop
Feeding Lambs
Finance: Tax Avoidance
Financial Planning for the Retired
Freeze Drying Fruits
French
German
Health and Lifestyles
Help for New Home Buyers
How to Heat with Wood and Insure Your Home
How to Make a Financial Plan
How to Use PIK Certificates to Make More Money
Impact of New Tax Laws
Income Tax for Farmers and Self

Indoor Air Quality
Investing in Stocks and Mutual Funds
Investment Alternatives
IRAs
Jams & Jellies
Journal Writing
Livestock and Crop Management: Choices After the Drought
Lymes Disease
Mutual Funds
New Parents
New Tax Laws and Investment Strategies
Passive Investments
Profit in Sheep Business
Property Taxes: Where Do We Go From Here
Rare Coin Investments
Record Keeping
Retirement Investments
Self Esteem
Spanish
Specialty Crops-Mushroom Culture
Stain Removal and Fabric Care
Taxation of Life/Health Insurance and Annuities
The 1987 Farm Income Tax Law Changes and How to Minimize Taxes
Timing is Everything in Investing
TV-A Tool for You
Understanding Industrial Injuries
Universal Life to Variable Life Insurance
Your Rights When Divorced
Your Rights as a Renter

Educational Telecommunications System (ETS)

Community Promotion
Sign Language
The Effect of the Farm Crisis on School Children
Time Management

Freshwater Woodland Cooperative Center

Children's Television Network
Community Leadership Development

Knowledge Interactive Distribution System (KIDS)

- Conversational Spanish
- Family Education for Success in the 80's
- Genealogy
- Graphology: Handwriting Analysis
- Intermediate Genealogy "Tracing Your Family Tree"
- Managing the Breeding Swine Herd
- Scouting Procedures in Cornfields
- Sheep Production
- Sign Language

Mid-State Educational Telecommunications Cooperative

- Fishing for Big Northern Pike
- Ice Fishing for Panfish
- Investing for Retirement
- New Farm Policies
- New Income Potentials
- Polish for Beginners
- Project Interact (Town Meeting)
- Supermarket Smarts

Minnesota Valley Tele-Network

- Customer Service Seminar
- National Issues Forum:
  - AIDS
  - Nuclear weapons
- Parenting
- Sign Language
- Steroids
- Supervisory Management

Northwest Educational Telecommunications Cooperative (NETS)

- Creating Your Own Business
- Floral design
- Hedging and Options
- How to Survive Adolescence
- Parenting
- Parenting Pointers
- The Meeting Will Come to Order

Quad County Telecomm Project

- Conversational German
- Hobby to Business
- Goal Setting
- How to Finance Your Childs Education
- Scholarship Search

Sherburne-Wright Educational Technology Cooperative

- Accounting I
- French I
- German I
- Small Business

Southwest Minnesota Telecommunications

- Book Club
- Money Management
- Saturday Forum
- Viet Nam

Valley & Lakes Education District

- Guitar

Credit Courses

Courses leading to a degree or certificate program.

East Central Minnesota Educational Cable Cooperative (ECMECC)

- College English
- Mass Communications
- Swedish
- College Spanish III

Freshwater Woodland Cooperative Center

- Algebra
- Composition
- Ethics
- Psychology

Knowledge Interactive Distribution System (KIDS)

- Interactive Educational Telecommunications

Mid-State Educational Telecommunications Cooperative

- Accounting I
- American Economy
- Beginning Spanish I
- Education of the Gifted
- General Psychology
- History of Wind Band Music
- Myth and Legend
- School Supervision
- The Classroom Teacher and Mainstreaming

Minnesota Valley Tele-Network

- Beginning Spanish
- Business and Society
- Family Violence
- Income Tax I
- Insurance and Risk Management
- Intro to Psychology
- Marriage and Family Living
- Parenting
- Pre Vocational Algebra
- Principles of Macro Economics
- Small Business Management
- Telemarketing

Quad County Telecomm Project

- Accounting Essentials
- American Sign Language I & II
- Elements of Electrical Engineering
- English Composition I
- Expository Writing
- Human Relations
- Meteorology
- Modern Drama
- Native American History
- Ojibwe Language
- Psychology
- Real Estate I & II
- Social Problems
- Sociology

Sibley County Cooperative

- Asian History
- Astronomy
- Communications I & II
- Geography
- Psychology
- Teaching for Global Perspective
- World History

Southwest Minnesota Telecommunications

Courses leading to Associate Arts degree from Worthington Community College:

- Biology
- College Algebra
- Level 2 Algebra
- Macro Economics
- Micro Economics
- Natural Science
- Speech
- World Literature I
- World Literature I I

Valley & Lakes Education District

- Disturbed and Disturbing Children In Crisis
- Statistics in Educational Research
- The Classroom Environment as an Instructional Strategy
- Philosophy
- Beginning Spanish

Wasioja Educational Telecommunications Cooperative

- Collaboration in the Schools

Continuing Education/Training

Courses where participants may gain new, or improve present job skills.

East Central Minnesota Educational Cable Cooperative (ECMECC)

- Adult Basic Education
- Appleworks
- Food Services-Sanitation and Food Safety
- Fundamentals of Food Service
- Graphics Table Demonstration
- Handling Hazardous Wastes
- Level I Maintenance-Apple Computer
- Mentorship
- Mentorship Evaluation
- Nutrition I
- Rum River Special Education
- Solving People Problems

Educational Telecommunications System (ETS)

Proposed:

- Going Into Business
- Using and Understanding Financial Statements
- Win-Win Tactics for Managers and Supervisors
- Written Skills for Improved Communication

Freshwater Woodland Cooperative Center

- First Responders Upgrade
- INTERACT - Town to Town Discussions

Knowledge Interactive Distribution System (KIDS)

- GED

Mid-State Educational Telecommunications Cooperative

- Handling Hazardous Wastes

Minnesota Valley Tele-Network

- Day Care Provider Inservice
- Handling Hazardous Wastes
- Insurance Agent Inservice
- Marketing Strategies (Agriculture)

Northwest Educational Telecommunications Cooperative (NETS)

- Sports injuries

Quad County Telecomm Project

- Boiler License

Sibley County Cooperative

- Ambulance and firemen renewal
- County extension classes
- GED

Southwest Minnesota Telecommunications

- Day Care Providers Workshops
  - Creative Play Ideas
  - Discipline in the Day Care Setting
- ECFE Certification Courses
- Insurance Seminars
- Realty Training Courses
- Regional Development Meetings

Valley & Lakes Education District

Nursing/Basic Cardiology

Wasioja Educational Telecommunications Cooperative

Extension classes
Insurance Agent Continuing Education Credits
Real Estate License

3) *Special Events*

Special events are one-time programs or periodic meetings offered to students, staff, or community members.

Students

Bloomington

Secondary students teach intermediate students how to put together a literary magazine.

Brainerd

Joint class activities between Brainerd and St. Cloud elementary classes
For instance, a meeting of hearing impaired students
Joint class activities between senior high and junior high
Speakers for classes

Central Minnesota Educational Telecommunications System (CMETS)

Art shows

East Central Minnesota Educational Cable Cooperative (ECMECC)

Alcohol Decisions Program
Minnesota Supreme Court in Session
Speakers for classes

Eden Valley Watkins, Kimball:

Joint student council meetings

Educational Telecommunications System (ETS)

Presentation by members of Icelandic Women's Party Workshop with quartet from Minneapolis Chamber Symphony

Freshwater Woodland Cooperative Center

- Dollars for Scholars (tele-auction)
- Foreign Language Camps
- Sporting events

Knowledge Interactive Distribution System (KIDS)

- Speakers for classes:
  - Dr. Martin Luther King Day
    Three students at Mankato State University spoke to four elementary schools.

Mid-State Educational Telecommunications Cooperative

- Alcohol Decisions Program
  - Special Topic Day - Elementary

Minneapolis

- Speakers for classes
- Sporting events

Quad County Telecomm Project

- Joint student council meetings
- Sporting events
- Young Writers' Fair

Sherburne-Wright Educational Technology Cooperative

- Sporting events

Valley & Lakes Education District

- Global Education Activity
  - Icelandic Women's Delegation during Women's History Month
    Scheduled for March 1990
- Student Teacher Conference

Wasioja Educational Telecommunications Cooperative

- ACT and SAT pretest class

Staff

Brainerd

Global education pilot project committee meetings

Saint Cloud State University teacher education students meeting with Brainerd teachers in their field of study

Little Crow Telemedia Network

Athletic directors' pairings

Minnesota Valley Tele-Network

Athletic seeding meetings

Southwest Minnesota Telecommunications

PER process meetings

Valley & Lakes Education District

K-12 information sharing in curriculum areas among teachers in all twelve school districts

Update on insurance teacher benefits

VAL-ED grant proposal information sharing

Outcome based video tape broadcasted to eleven sites from the ECSU/VAL-ED site

Teacher negotiation information discussion

Computer information session

Information gathering and preperation among technology site facilitators

Interactive television in-service session for secondary, post-secondary and West Central ECSU faculty and staff

Cluster program planning meetings of community education directors

Community

Bloomington

Live broadcast of school board meetings

Brainerd

Extension service seminar

East Central Minnesota Educational Cable Cooperative (ECMECC)

Aids: An Overview for the Community

Arts Grant Presentations

Veterans' Service Group Panel

Educational Telecommunications system (ETS)

Campfire meeting

Joint civic and commerce meeting

Freshwater Woodland Cooperative Center

Live broadcast of school board meetings

Special presenters:

drunk driving, customer relations, agriculture, C-Span, law, volunteerism, community improvement

Knowledge Interactive Distribution System (KIDS)

Mini legislative hearing about interactive television over system

Nicollet County Extension leadership training

Lake Superior Public Schools

School board committee meetings

Mid-State Educational Telecommunications Cooperative

Drought update

Minneapolis

Live broadcast of school board meetings

Minnesota Valley Tele-Network

Blandin Leadership Program

4-H

Quad County Telecomm Project

PTA open house

Sherburne-Wright Educational Technology Cooperative

Church service

Community plays

Sibley County Cooperative

Political forums

South Washington County

Live broadcast of school board meetings

Other

Brainerd

SCSU teacher education classes introduced to the two-way television system and how it works

4) *Inter-School/Inter-Departmental Uses*

Interactive television systems are finding that the system can be used to save travel time to attend meetings. This time savings is true for both metro schools with rush hour traffic problems and rural schools with windshield time problems.

4) INTER-SCHOOL/INTER-DEPARTMENTAL USES

Site Name	Dept Meetings	Staff Inservice	Teleconferences	Governing Board Meetings	Student Council Meetings	Community Education Directors' Meetings	Administrator Meetings	Curriculum Dev Meetings	Advisory Comm Meetings	Parent/Teacher Conferences
Austin-Southland										
Bloomington Public Schools										
Brainerd Public Schools										
Central MN Ed Telecomm System	yes	yes		yes			yes			
DesMoines River Valley Telemedia										
Edina Public Schools										
ECMECC	yes	yes	yes	yes			yes	yes	yes	
Eden Valley/Watkins-Kimball					yes	yes				
Ed Telecommunications System		yes		yes		yes	yes	yes	yes	yes
Freshwater Woodland Coop Center	yes	yes	yes				yes	yes		
Hastings Public Schools		yes								
Intermediate District 287										
Intermediate District 916										
KIDS										yes
Lake Superior Public Schools	yes									
LeSueur-Henderson										
Little Crow Telemedia	yes	yes	yes	yes			yes		yes	
Mid-State Educ Telecom Cooperative	yes	yes		yes			yes			
Minneapolis Public Schools		yes	yes							
Minnesota Moose Country										
Minnesota Valley Telenetwork		yes		yes			yes	yes		
Moundsview-Roseville-Saint Anthony										
North Saint Paul-Maplewood-Oakdale		yes								
Northwest Educational Tech Coop				yes		yes	yes			
Quad County Telecomm Project		yes		yes		yes	yes			
Rochester Public Schools										
Shakopee Public Schools										
Sherburne/Wright Educ Tech Coop		yes	yes							yes
Sibley County Cooperative	yes	yes					yes	yes		
South Washington County Schools		yes	yes							
Southwest MN Telecommunications	yes			yes						
Valley and Lakes Education District										
Wasioja										

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5) Unique by-products or outcomes of interactive television system use.

As interactive television cooperatives have been implemented, many unplanned benefits are being experienced. Schools are working together more and discovering areas of common interest and needs that can be jointly addressed. The following comments were made by interactive television project coordinators.

Added traditional classes in French, German, and Spanish to eighth grade curriculum due, in part, to elementary exposure on interactive television. (Hastings)

A feeling of pride throughout the communities knowing that the six school districts and communities are working together toward a common goal.

Penpal relationship between Brainerd students and St Cloud students. (Brainerd)

The interactive television system led to the decision to develop a joint media collection (limited to high school print media at this time) which will be placed on a database and accessed from each school by an automated circulation and cataloging system. (ETS)

Joint hiring of a curriculum director, establishment of a common PER cycle and joint curriculum review. (ETS)

There is more cooperation among the Sherburne Wright Educational Technology Cooperative member schools. This is a result of successful cooperation and regular meetings. (Sherburne-Wright)

Identical PER cycles for all districts in and around the tele-media system.

Joint curriculum, schedules, calendar. (Southwest)

Establishment of learner outcomes (Minnesota Valley)

Adult and high school learners enrolled in same classes. Utilization of the technology for computer networking. (Valley and Lakes Education District)

Chapter Three
Interfacing with Other Technologies

Through the implementation of technology grants, interactive television found its beginnings in Minnesota's K-12 schools. Technology is constantly changing. Advancements continue to bring new and innovative uses to the interactive television systems.

Although the original intent for interactive television transmission facilities was to provide continuous, full motion video and two-way audio communications, the technology is not restricted to only that use. The networks interface additional technologies that expand the systems' capabilities. Modems and computers add online capability to send electronic data. Hard copy is transmitted using facsimile machines. Supplemental, cost-effective, audio transmissions are added in the form of private telephone communications. Systems are also using the networks to hook up local computer terminals to mainframes and access databases at other locations.

Through technology, school districts in ever increasing numbers are expanding their signals beyond their original boundaries. By accessing cable channels and satellite links, projects have been able to exchange information with other people and institutions throughout their community, state, nation, and world. Interconnecting the various clusters of interactive television systems has been successfully accomplished in several instances. Future connection of local interactive television networks to a proposed, statewide telecommunications network is now being investigated.

Below is a list of expanded uses for interactive television networks now being implemented in Minnesota. The chart indicates which sites have implemented these technologies on their interactive television systems.

Data Transfer
- Online
- Facsimile

Satellite Downlink

Community Cable Access

Project Interconnect (local, regional)

Communications (telephone on system)

Other

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INTERFACING WITH OTHER TECHNOLOGIES								
					Community			
	Data			Satellite	Cable	Project		
Site Name	Transfer	Online	FAX	Downlink	Access	Interconnect	Telephone	Other
Austin-Southland								
Bloomington Public Schools				yes	yes			
Brainerd Public Schools	yes	yes	yes	yes	yes	yes	yes	
Central MN Ed Telecom System			yes				yes	
Edina Public Schools								
ECMECC			yes	yes	yes	yes		
Eden Valley/Watkins-Kimball								
Ed Telecommunications System								
Freshwater Woodland Coop Center			yes	yes	yes	yes	yes	
Hastings Public Schools				yes	yes			
Intermediate District 287	yes	yes	yes	yes	yes	yes	yes	interactive computer
Intermediate District 916			yes				yes	
KIDS	yes	yes	yes	yes	yes			
Lake Superior Public Schools								
LeSueur-Henderson								
Little Crow Telemedia			yes	yes	yes			
Mid-State Ed Telecom Cooperative	yes	yes	yes	yes	yes	yes	yes	switchable channels
Minneapolis Public Schools				yes	yes		yes	
Minnesota Moose Country	yes	yes	yes	yes			yes	
Minnesota Valley Telenetwork				yes	yes	yes		
Moundsview-Roseville-StAnthony								
North Saint Paul-Maplewood-Oakdale								
Northwest Educational Tech Coop	yes		yes				yes	
Quad County Telecom Project			yes					switchable channels
Rochester Public Schools				yes	yes			
Shakopee Public Schools								
Sherburne/Wright Educ Tech Coop			yes	yes	yes			
Sibley County Cooperative			yes		yes		yes	
South Washington County Schools	yes		yes	yes	yes			
Southwest MN Telecommunications				yes				
Valley and Lakes Education District		yes	yes	yes	yes		yes	
Wasioja	yes	yes	yes	yes			yes	

Chapter Four
Individual System Profiles

DISTANCE EDUCATION IN MINNESOTA

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AUSTIN-SOUTHLAND

Participating School Districts
Austin
Southland

Post-secondary Partnerships None

Established 1984

Source of Start-Up Funding
Local funds
Minnesota Technology Demonstration Site

Transmission System
Instructional Television Fixed Service (ITFS)
Microwave

Level of Interactivity
Full Interactivity

Own, Lease, Access only
Own

Business Partnerships
KSMQ Public Television

Contact Person Paul Grosland, 507-433-0401

BLOOMINGTON PUBLIC SCHOOLS

Participating School Districts
Bloomington

Post-secondary Partnerships None

Established 1984

Source of Start-Up Funding
Franchise fees
Local funds
Technology Demonstration Site

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Nortel Cable Company

Contact Person John Parker, 612-887-9152

BRAINERD PUBLIC SCHOOLS

Participating School Districts Brainerd

Post-secondary Partnerships Connected to Saint Cloud State University

Established 1987

Source of Start-Up Funding
Courseware Integration Center Grant
Local funds

Transmission System
Coaxial cable within district
Fiber optics to Saint Cloud

Level of Interactivity
Full interactivity

Own, Lease, Access only
Own fiber system
Access cable system

Business Partnerships
Bresnan Communications

Contact Person Elsie Husom, 218-828-5283

CENTRAL MINNESOTA EDUCATIONAL TELECOMMUNICATIONS SYSTEM

Participating School Districts
Albany
Melrose
Osakis
Sauk Centre

Post-secondary Partnerships
Conected to Saint Cloud State University

Established 1989

Source of Start-Up Funding
Local funds

Transmission System
Fiber optics

Level of Interactivity
Full interactivity

Own, Lease, Access only
Lease

Business Partnerships
Melrose Telephone Company
Midwest Telephone Company
Mutual Telephone Association

Contact Person Arlen Pearson, 612-256-4224

DES MOINES RIVER VALLEY TELE-MEDIA

Participating School Districts

Brewster	Lamberton
Butterfield	Mountain Lake
Comfrey	Okabena
Jackson	Springfield
Jeffers	Westbrook
Lakefield	Windom

Post-secondary Partnerships Associated with:
Worthington Community College

Established 1989

Source of Start-Up Funding
Local funds
NTIA Grant

Transmission System
Instructional Television Fixed Service (ITFS)
Microwave
Fiber optics

Level of Interactivity
Sequenced

Own, Lease, Access only
Own

Business Partnerships None

Contact Person David Hoffmann, 507-445-3424

EAST CENTRAL MINNESOTA EDUCATIONAL CABLE COOPERATIVE

Participating School Districts

Braham
Cambridge-Isanti
Milaca
Mora
Ogilvie
Pine City
Princeton

Post-secondary Partnerships Connected to
Pine Technical College
Associated with
Cambridge Community College

Established 1984

Source of Start-Up Funding

Local Funds
Technology Demonstration Sites

Transmission System

AML Microwave
Microwave
Coaxial cable

Level of Interactivity

Full interactivity

Own, Lease, Access only Own

Business Partnerships

East Central Minnesota Cablevision

Contact Person Steve Hallan, 612-396-3674

EDEN VALLEY-WATKINS-KIMBALL

Participating School Districts
Eden Valley-Watkins
Kimball

Post-secondary Partnerships None

Established 1987

Source of Start-Up Funding
Local funds

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Mark Twain Cable

Contact Person Don Kjar, 612-453-2900

EDINA PUBLIC SCHOOLS

Participating School Districts
Edina

Post-secondary Partnerships None

Established 1984

Source of Start-Up Funds
Local funds

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Paragon Cable

Contact Person Doug Hed, 612-829-5742

EDUCATIONAL TELECOMMUNICATIONS SYSTEM

Participating School Districts

Ashby
Battle Lake
Elbow Lake (West Central)
Hoffman-Kensington
Underwood

Post-secondary Partnerships Associated with:
Fergus Falls Community College

Established 1986

Source of Start-Up Funding
Local Funds

Transmission System
Fiber optics

Level of Interactivity
Full interactivity

Own, Lease, Access only
Lease

Business Partnerships
Park Region Cooperative - Underwood

Contact Person Karen Lundstrom, 218-747-2257

FRESHWATER WOODLAND COOPERATIVE CENTER

Participating School Districts

Bertha-Hewitt
Clarissa-Eagle Valley Elementary
Eagle Valley
Parkers Prairie
Pillager
Staples

Post-secondary Partnerships None

Established 1980

Source of Start-Up Funding

Council on Quality Education Grant
Local funds
Technology Demonstration Site

Transmission System

Low Power
Instructional Television Fixed Service (ITFS)
Microwave

Level of Interactivity

Full interactivity

Own, Lease, Access only

Own

Business Partnerships

None

Contact Person James A. Hofer, 218-894-2439

HASTINGS PUBLIC SCHOOLS

Participating School Districts

Hastings	5 elementary schools, 1 senior high, 1 middle school

Post-secondary Partnerships None

Established 1986

Source of Start-Up Funding
Local funds plus block grant funds

Transmission System
Coaxial Cable - I-Net System - private - separate from subscriber cable system

Level of Interactivity
Full interactivity all seven locations.
One way transmission possible to every classroom in District 200 schools.

Own, Lease, Access only
Access only
Local cable company provides total of eight upstream and eight downstream channels at no cost to school district.

Business Partnerships
King Videocable
Hastings City Public Access—school provides studio space and city provides public access equipment located in school.

Contact Person Dave Mattson, 612-437-6111 ext. 322

INTERMEDIATE DISTRICT 287

Participating School Districts

Bloomington
Brooklyn Center
Eden Prairie
Edina
Hopkins
Minnetonka
Mound-West Tonka
Orono
Osseo
Richfield
Robbinsdale
St Louis Park
Wayzata

Post-secondary Partnerships

Connected to:
North Hennepin Technical College
South Hennepin Technical College

Established 1985

Source of Start-Up Funds

Local funds

Transmission System

Coaxial cable

Level of Interactivity

Full interactivity

Own, Lease, Access only

Access only

Business Partnerships

King Cable
Paragon

Contact Person Bill Leto, 612-553-5604

INTERMEDIATE DISTRICT 916

Participating School Districts
Stillwater Public Schools
South Washington County Schools

Post-secondary Partnerships
Associated with Lakewood Community College

Established 1989

Source of Start-Up Funding
Local funds
District 916

Transmission System
Fiber optics

Level of Interactivity
Two channels
Full interactivity

Own, Lease, Access only
Lease

Business Partnerships
U.S West

Contact Person Bev Skoglund, 612-439-5160
FAX: 612-439-3948

KNOWLEDGE INTERACTIVE DISTRIBUTION SYSTEM (KIDS)

Participating School Districts

Cleveland
Lake Crystal
Nicollet
St. Clair
St. Peter

Post-secondary Partnerships

Connected to:
Mankato State University
Mankato Technical College

Associated with:

University of Minnesota - Waseca

Established 1985

Source of Start-Up Funding

Technology Demonstration Sites
Local funds

Transmission System

Microwave (23 megaHertz)

Level of Interactivity

Limited interaction student to student among all sites

Own, Lease, Access only

Own

Business Partnerships

None

Contact Person

Frank Birmingham, 507-931-7832
FAX: 507-931-4783

LAKE SUPERIOR PUBLIC SCHOOLS

Participating School Districts
Lake Superior: Kelley Secondary and Two Harbors Senior High

Post-secondary Partnerships None

Established 1988

Source of Start-Up Funding
Local funds

Transmission System
Microwave

Level of Interactivity
Full interactivity

Own, Lease, Access only
Own

Business Partnerships
None

Contact Person Bob Davies, 218-834-5142

LE SUEUR-HENDERSON PUBLIC SCHOOLS

Participating School Districts
Henderson
Le Sueur

Post-secondary Partnerships None

Established 1986

Source of Start-Up Funds
Local funds

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Triax Cable

Contact Person David Czech, 612-964-5105

LITTLE CROW TELEMEDIA NETWORK

Participating School Districts

Brownton	Hutchinson
Buffalo Lake/Hector	Silver Lake
Cosmos	Stewart
Glencoe	

Post-secondary Partnerships Connected to:
Hutchinson Technical College

Established 1989

Source of Start-Up Funding
Local funds

Transmission System
Fiber optics

Level of Interactivity
Full interactivity

Own, Lease, Access only
Lease fiber
Own equipment

Business Partnerships
None

Contact Person Peter Royer, 612-562-2219
FAX: 612-562-2410

MID-STATE EDUCATIONAL TELECOMMUNICATIONS COOPERATIVE

Participating School Districts

Holdingford	Pierz
Little Falls	Royalton
Long Prairie	Swanville
Onamia	Upsala

Post-secondary Partnerships Connected to:
Brainerd Community College
Saint Cloud State University

Established 1986

Source of Start-Up Funding
State appropriation

Transmission System
Fiber optics

Level of Interactivity
Full interactivity

Own, Lease, Access only
Own

Business Partnerships
Upsala Telephone Company

Contact Person Jerry Abraham, 612-573-2177

MINNEAPOLIS PUBLIC SCHOOLS

Participating School Districts
Minneapolis

Post-secondary Partnerships
Associated with the University of Minnesota

Established 1986

Source of Start-Up Funding
Local funds

Transmission System
Coaxial cable
Fiber optic trunk lines

Level of Interactivity
Full interactivity at 10 locations
One-way transmission to all sites

Own, Lease, Access only
Access only

Business Partnerships
Paragon Cable

Contact Person Warren Gerecke, 612-627-2165

MINNESOTA VALLEY TELE-NETWORK

Participating School Districts

Appleton
Benson
Dawson-Boyd
Granite Falls
Madison
Maynard
Milan
Montevideo
Ortonville

Post-secondary Partnerships

Connected to:
Southwest State University
University of Minnesota-Morris

Associated with:

Southwestern Technical College (Granite Falls Campus)
Willmar Community College

Established 1985

Source of Start-Up Funding

Local funds
Technology Demonstration Site

Transmission System

Instructional Television Fixed Service (ITFS)
Microwave

Level of Interactivity

Sequenced

Own, Lease, Access only

Own

Business Partnerships

Pioneer Public Television

Contact Person

Lynn Steenblock, 612-269-9297
FAX # 612-269-5474

MINNESOTA MOOSE COUNTRY

Participating School Districts

Badger
Greenbush
Karlstad
Lancaster
Middle River

Post-secondary Partnerships

Associated with:
Northland Community College
Thief River Falls Technical College

Established

1990

Source of Start-Up Funding

Local funds
State appropriation

Transmission System

Fiber optics

Level of Interactivity

Full interactivity

Own, Lease, Access only

Lease

Business Partnerships

Wikstrom Telephone Company

Contact Person

Lowell Schwalbe, 218-436-2261

MOUNDSVIEW-ROSEVILLE-SAINT ANTHONY

Participating School Districts
Moundsview
Roseville
Saint Anthony

Post-secondary Partnerships None

Established 1985

Source of Start-Up Funds
Local funds

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Cable TV North Central

Contact Person Jesse Johnson, 612-636-3650

NORTH SAINT PAUL-MAPLEWOOD-OAKDALE PUBLIC SCHOOLS

Participating School Districts
North Saint Paul-Maplewood-Oakdale School District

Post-secondary Partnerships None

Established 1987

Source of Start-Up Funds
Local funds

Transmission System
Coaxial cable

Level of Interactivity
Limited student-to-student interaction

Own, Lease, Access only
Access only

Business Partnerships
Cable TV North Central

Contact Person Judy Bull, 612-770-4741

NORTHWEST EDUCATIONAL TECHNOLOGY COOPERATIVE

Participating School Districts

Argyle	Kennedy
Alveredo	Stephen
Hallock	Warren

Post-secondary Partnerships Associated with:
East Grand Forks Technical College

Established 1989

Source of Start-Up Funds
State appropriation

Transmission System
Fiber optics

Level of Interactivity
Full interactivity

Own, Lease, Access only
Lease fiber
Own electronics

Business Partnerships
Contel

Contact Person James Schindele, 218-478-3315

QUAD COUNTY TELECOMM PROJECT

Participating School Districts

Coleraine	Hill City
Deer River	Nashwauk-Keewatin
Grand Rapids-Bigfork	Remer

Post Secondary Members — Connected to:
Hibbing Community College
Itasca Community College

Established — 1987

Source of Start-Up Funding
- Blandin Foundation Grant
- Local district funds
- Northern Fiber (local consortium of telephone companies)
- Program Improvement Grant

Transmission System
- Fiber optics

Level of Interactivity
- Full interactivity

Own, Lease, Access only
- Own optics equipment and classroom equipment
- Own two fiber
- Northern Fiber owns eight fibers in common cable fiber

Business Partnerships
- Blandin Foundation (financing)
- Northern Fiber with cable

Contact Person — Kirk Myers, 218-566-1412
FAX # 218-566-2189

ROCHESTER PUBLIC SCHOOLS

Participating School Districts
Rochester

Post-secondary Partnerships None

Established 1984

Source of Start-Up Funds
Local funds
Technology Demonstration Site

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Westmark Cable

Contact Person Jeff Lueders, 507-285-8060

SHAKOPEE PUBLIC SCHOOLS

Participating School Districts
Shakopee

Programming Partnerships
Women's Correctional Facility

Established 1985

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Access only

Business Partnerships
Amzak Cable

Contact Person Ron Ward, 612-445-4884

SHERBURNE-WRIGHT EDUCATIONAL TECHNOLOGY COOPERATIVE

Participating School Districts

Big Lake	Monticello
Buffalo	Rockford
Delano	St Michael-Albertville
Maple Lake	Watertown-Mayer

Associate members not connected on system:

Annandale	Elk River
Becker	Howard Lake
Dassel-Cokato	

Post-secondary Partnerships
Associated with:
Hutchinson Technical College
Saint Cloud State University

Established
1986

Source of Start-Up Funding
Local funds
Technology Demonstration Sites

Transmission System
Coaxial cable
Instructional Television Fixed Service (ITFS)
Microwave

Level of Interactivity
Full interactivity

Own, Lease, Access only
Combination of owned and cable access

Business Partnerships
Jones Cable

Contact Person
Jim Mecklenburg, 612-338-0417
FAX # 612-682-4113

SIBLEY COUNTY COOPERATIVE

Participating School Districts

Arlington	Gibbon
Gaylord	Winthrop

Post-secondary Partnerships Associated with: Mankato State University

Established 1986

Source of Start-Up Funding
Local funds
Technology Demonstration Site

Transmission System
Coaxial cable

Level of Interactivity
Full interactivity

Own, Lease, Access only
Lease

Business Partnerships
Dow-sat

Contact Person David Czech, 612-964-5105

SOUTH WASHINGTON COUNTY PUBLIC SCHOOLS

Participating School Districts
South Washington County Schools

Post-secondary Partnerships Associated with:
Inver Hills Community College

Established 1986

Source of Start-Up Funding
Local funds

Transmission System
Coaxial cable

Level of Interactivity
Limited student teacher interaction at elementary level
Full interactivity at secondary

Own, Lease, Access only
Access only

Business Partnerships
King Video Cable Company of Minnesota

Contact Person David Henning , 612-458-4310

SOUTHWEST MINNESOTA TELECOMMUNICATIONS

Participating School Districts

Adrian	Jasper
Chandler-Lake Wilson	Luverne
Edgerton	Magnolia
Fulda	Pipestone
Hills-Beaver Creek	Slayton

Post-secondary Partnerships Associated with: Worthington Community College

Established 1986

Source of Start-Up Funding
Legislative appropriation

Transmission System
Instructional Television Fixed Service (ITFS)
Point-to-Point Microwave (6 and 23 Ghz)

Level of Interactivity
Full interactivity around two-hub system
Sequenced

Own, Lease, Access only
Own

Business Partnerships
None

Contact Person Kim Schmidt, 507- 283-9191

VALLEY AND LAKES EDUCATION DISTRICT

Participating School Districts

Audubon
Barnesville
Breckenridge
Campbell-Tintah
Dilworth
Fergus Falls
Glyndon-Felton
Lake Park
New York Mills
Rothsay
Ulen-Hitterdal

Associate Member West Central ECSU

Members-Post Secondary
Concordia College
Fergus Falls Community College
Moorhead State University

Established 1989
(Audubon and Lake Park, 1987)

Source of Start-Up Funding
Local funds
West Central Minnesota Initiative Fund

Transmission System
Fiber optics

Level of Interactivity
Full interactivity

Own, Lease, Access only
Lease fiber

Business Partnerships
Val Ed Joint Venture Group consisting of:
Barnesville Municipal Telephone
East Otter Tail Telephone
Norman County Telephone
Park Region Telephone
Red River Telephone
Rothsay Telephone

Contact Person Beverly Slotten, 218-739-3273

WASIOJA EDUCATIONAL TELECOMMUNICATIONS COOPERATIVE

Participating School Districts

Claremont
Dodge Center
Goodhue
Kenyon
Wanamingo
West Concord
Zumbrota

Post-secondary Partnerships Associated with Winona State University

Established 1986

Source of Start-Up Funds

Local funds
State appropriation

Transmission System

Fiber optics

Level of Interactivity

Full interactivity

Own, Lease, Access only

Own equipment
Lease fiber

Business Partnerships

Contel and
two independent telephone companies

Contact Person Terrance Twite, 507-374-2192

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